

Implementation of Research Results

Project Information	
Project Title: Pollutant Loadings to Storm water Runoff From Highways: The Impact of a Freeway Sweeping Program	Project ID: 0092-45-82 Today's Date: 07/31/02
Technical Oversight Committee (WHRP or COR): COR	TOC Chair and Phone number: Tom Martinelli (608) 266-3745
Project Start Date: October 27, 1998	Approved Contract Amount: \$130,000
Project End Date: May 1, 2002	Final Project Expenditures: \$115,392
Reference Final Report Draft Dated: June, 2002	
Principal Investigator: Tom Martinelli	Phone: (608) 266-3745
Organization: Wisconsin Department of Transportation	E-Mail: Thomas.Martinelli@dot.state.wi.us

Technical Oversight Committee Recommendations	
<p>1. Check one of the two choices below:</p> <p style="padding-left: 20px;">Yes. We recommend changes to current practice based on <u>some or all</u> of the results of this report. The research was sound, and the report's conclusions appear to offer an advance over current practice.</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> No. We do not recommend changes to current practice at this time. Future study is needed.</p>	
<p>2. If complete implementation is <u>not recommended</u>, we suggest the following actions instead: Phase II of study as described in the attached implementation work plan.</p>	
<p>3. If implementation (partial) is <u>recommended</u>, we suggest the following <u>specific</u> changes to current practice, detailed on the <u>attached work plan and timeline</u> at a future date (refer to implementation time line) (check applicable items):</p> <p><input type="checkbox"/> Standard Specifications</p> <p><input type="checkbox"/> Quality Management Program (QMP) Specifications</p> <p><input checked="" type="checkbox"/> Facilities Development Manual (FDM)---Procedure 10-40-05: Maintenance B.M.P.'s-Street Sweeping</p> <p><input checked="" type="checkbox"/> Highway Maintenance Manual---Chapter 40-Pavement Maintenance</p> <p><input checked="" type="checkbox"/> Training, outreach---WisDOT District Highway Operations and County Highway Departments</p> <p><input type="checkbox"/> Other (describe):</p>	
4. Approval of this implementation plan by the Technical Oversight Committee (chair on behalf of entire committee):	<p>Signature:</p> <p>Date:</p>
5. Approval of this implementation plan by the Council on Research (for COR approved projects):	<p>Signature(s):</p> <p>Date:</p>
6. Referral for development of detailed work plan and timeline to (check one):	<p><input type="checkbox"/> WisDOT/Industry Technical Committee on:</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">---</p> <p><input checked="" type="checkbox"/> Other WisDOT policy body: BHO & District Operations Managers</p>
7. Approval of work plan and timeline by the WisDOT Bureau Director(s) responsible for the policies described in item #3 above:	<p>Signature(s):</p> <p>Date:</p>
8. Acceptance by a project manager of the responsibility for completing these implementation efforts according to the attached work plan and timeline:	<p>Signature:</p> <p>Date:</p>

Implementation Work Plan

1. Project Title: Pollutant Loadings to Storm Water Runoff from Highways: The Impact of a Freeway Sweeping Program

**2. Prepared by: Tom Martinelli,
Bureau of Highway Operations
608-266-3745**

3. Scope and objectives of implementation, including specific changes to WisDOT procedures.

- a. Perform additional research/field testing of sweeper equipment, runoff and material sampling, lab. testing, Analysis, modeling, and cost/benefit analysis. Submit project proposal to C.O.R. for follow-up research project funding (Phase II) (WisDOT Bureau of Environmental Analysis/Bureau of Highway Operations).

Based upon the results of the Phase II research results as described in Item (a), the following items would be considered:

- b. Develop guidelines for Maintenance Manual Chapter 40-Pavement Maintenance; including outline of a sweeping program that addresses equipment required, frequency of sweeping, disposal of collected material, testing of material collected, etc. (WisDOT-Bureau of Highway Operations) (WisDOT in-house staff time; no external contracts or costs).
- c. Revise F.D.M. Procedure 10-40-05 Street Sweeping (WisDOT Bureau of Environment) (WisDOT in-house staff time; no external contracts or costs).
- d. Develop training program for county highway departments and WisDOT District Highway Operations affected by new Maintenance Manual guidelines on freeway sweeping (WisDOT Bureau of Highway Operations and Bureau of Environmental Analysis) (WisDOT in-house staff time; no external contracts or costs).
- e. Share study results with WDNR storm water protection group (WDNR-Russ Rasmussen).
 - incorporate results into WDNR "Green Book" on storm water management and have sweeping included as a Best Management Practice (BMP).
 - incorporate recommendations into future guidance manual revisions and technical standards on sweeping operations ("SOC" standards).
 - modify WisDOT/WDNR memorandum of understanding (MOU) on storm water discharges to the waters of the state to include specific language on freeway sweeping as a BMP (WisDOT Bureau of Environment-Dan Scudder).

4. Estimated future cost to implement.

- 1) Training Program = \$5,000 (B.H.O.)
- 2) Additional research project = \$150,000 (C.O.R. funding request)
- 3) Expanded sweeping operations by Highway County Departments= \$700,000 (B.H.O.)

5. Expected benefits and how they will be measured (dollar savings, time savings, other).

- a. Improved water quality of Wisconsin ground water.
- b. Cost effective best management practice that will assist WisDOT in meeting water quality standards as established by E.P.A. Phase I Storm water Regulations, Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), and WDNR Administrative Code 216.
- c. Reduction in pollutant (T.S.S.) runoff from urban freeway sections. Measured by sampling of runoff from swept and non-swept freeway sections.

6. Possible pitfalls and how they will be avoided.

- a. **Funding and acquisition of sweeper equipment by county highway departments. Establishment of hourly equipment rate by Machinery Management Committee.**
- b. **Acceptance of sweeping guidelines by county highway departments. Guideline training provided jointly by B.H.O. and B.O.E.**

Implementation Timeline (Gantt Chart)

Tasks/Person Responsible	2002	2003	2004	2005								
Phase II of freeway sweeping research (Dan Scudder and Tom Martinelli)		X	X									
Develop Maintenance Manual guidelines on sweeping (Tom Martinelli, B.H.O.)				X								
Revisions to F.D.M. Procedure 10-40-05				X								
(Dan Scudder, B.O.E.)												
Training Program on Freeway Sweeping				X								
(Tom Martinelli)												
Discuss Phase I & II study results with WDNR (Tom Martinelli)	X			X								